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Date of request 8/18/95 Expected receipt of document 9/15/95

Document number ~~KOA-1440~~ (Sanitized Version K/EM-182) ~~KC 666 pt 3~~ Date of document 6/28/66

Title and author (if document is unnumbered)

(This section to be completed by Document Center)

Date request received 8/24/95

Date submitted to ADC 8/30/95

Date submitted to HSA Coordinator 8/24/95

(This section to be completed by HSA Coordinator)

Date submitted to CICO 8/30/95 9/12/95

Date received from CICO 9/11/95 9/20/95

Date submitted to ChemRisk/Shonka and DOE 9/27/95

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

K/EM-182

SANITIZED VERSION OF K-OA-1440
(Sanitized Version of SRD Document # K-OA-1440 dated 6/28/66)

Compiled by
S. G. Thornton
Environmental Management Division
OAK RIDGE K-25 SITE
for the Health Studies Agreement

September 12, 1995

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

This document has been approved for release
to the public by:

Thornton for A.S. Quist 9-13-95
Technical Information Officer Date
Oak Ridge K-25 Site

Diagrams No. 1 and No. 2 give before and after data on the K-33 ventilation system. A precaution here repeated is that heat balances should not be made with diagram data to obtain a very precise estimate of the fraction of shaft power eventually dumped via the ventilation system.

Table I lists some statistics on gaseous diffusion plant buildings. Figure 3 plots building electrical load versus ventilation intake and discharge area. Points to keep in mind here are differences between the ventilation systems, such as separate venting of motor air, and lumping of equipment sizes.

CLASSIFICATION COORDINATION REQUIRED

Classification changes to this document must be coordinated with other DOE sites or other Federal agencies.

AEC signature 15 Sep 95 Date

A. de la Garza

A. de la Garza
Operations Analysis Division
Oak Ridge Gaseous Diffusion Plant

AG:fw

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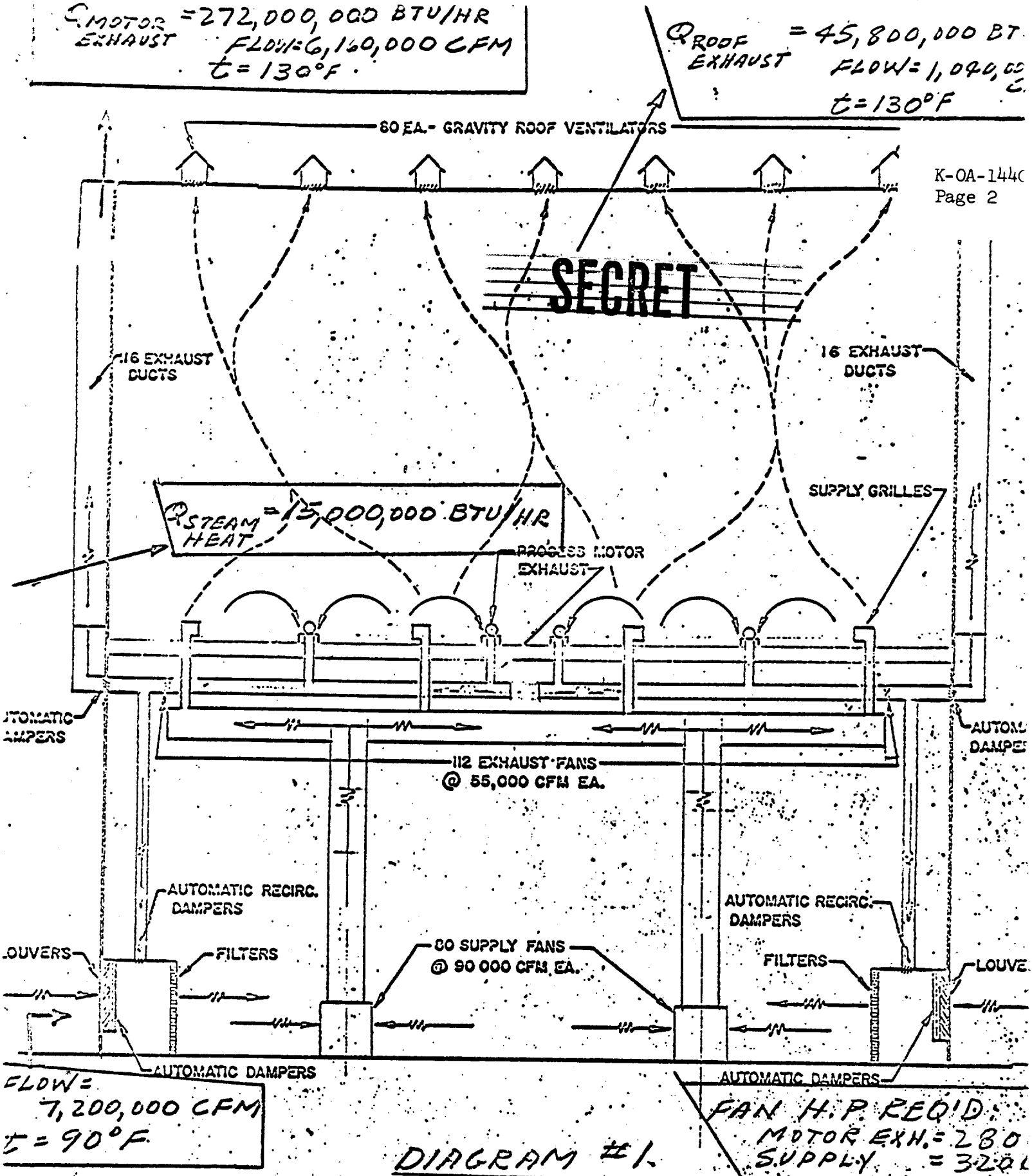

DIAGRAM #1.

K-33 VENTILATION SYSTEM

EXISTING SYSTEM UNDER SUMMER DESIGN CONDITIONS.

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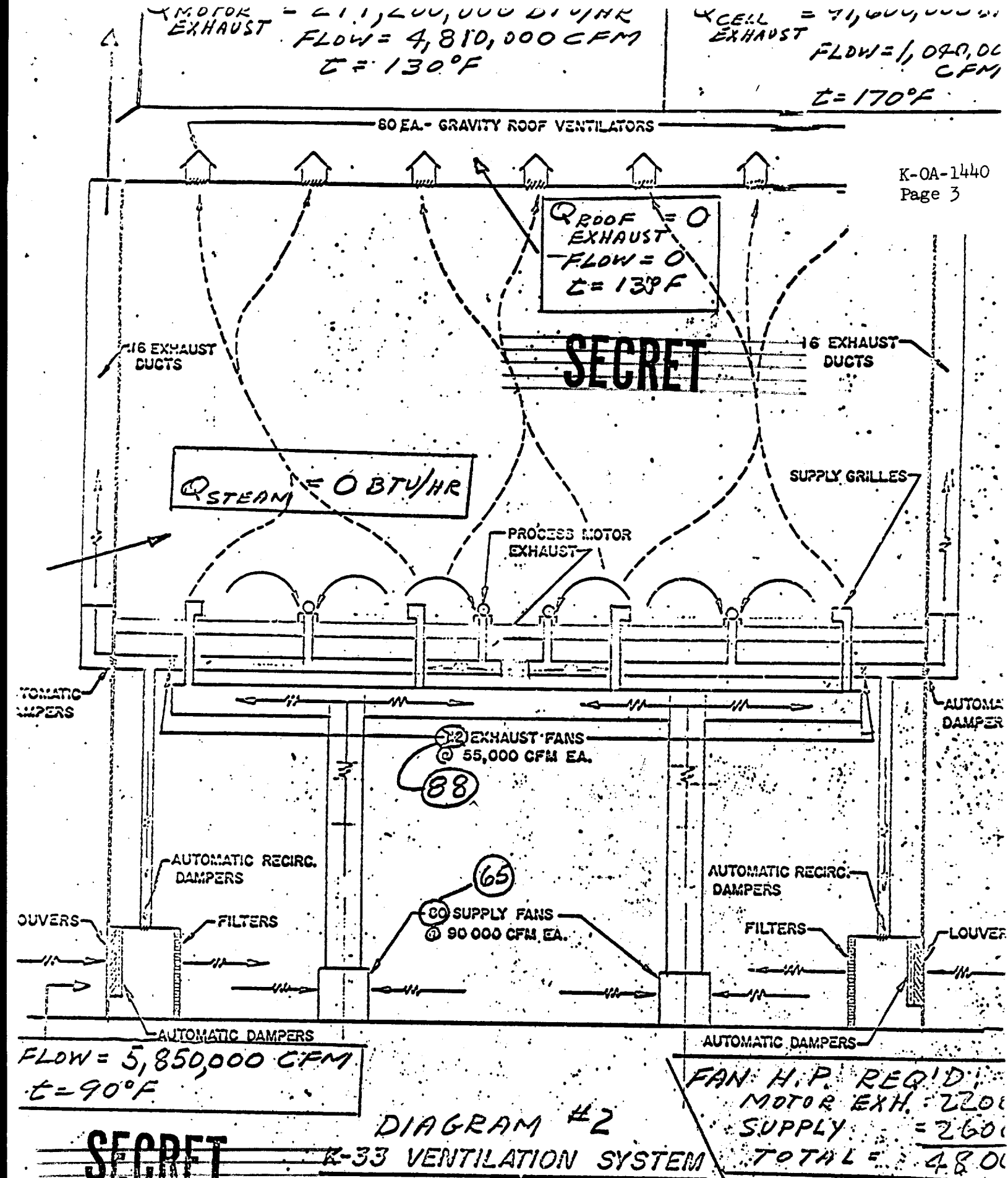

DIAGRAM #2
K-33 VENTILATION SYSTEM

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ESTIMATED CONDITIONS FOR PROPOSED SYSTEM UNDER SUMMER DESIGN CONDITIONS

TABLE 1

GASEOUS DIFFUSION PLANT STRUCTURE STATISTICS

Building	Number of Stages	Total Building Power: Brake Horsepower	Total Building Power: Switchyard Load (MW)	Building Size: Sq. Ft. x 10^{-3}	Building Size: Cu. Ft. x 10^{-6}	Ventilation (Sq. Ft.): Forced: Intake	Ventilation (Sq. Ft.): Forced: Discharge	Ventilation (Sq. Ft.): Natural	Cooling Water: Pumpage (gpm)	Cooling Water: Tower Volume ($ft.^3$)
K-25	2,670	239,154	247.3	1,816	93.7	38,890		57,512	104,500	1,503,810
K-27	540	135,000	121.1	385	15.2	10,200		13,820	*	*
X-326	2,280	206,429	183.6	1,270	76.0	11,712	1,625	8,960	44,700	478,200
K-29	300	147,000	120.0	295	15.4	2,800		4,013	*	*
K-31	600	543,900	446.2	751	49.4	5,093	1,348	1,920	55,000	921,690
X-330	1,100	950,190	773.4	1,470	90.4	9,600	5,184	3,920	109,000	1,465,560
C-331	400	462,740	400.1	518	34.2	4,176	1,305	2,560	53,250	644,930
C-335	400	468,050	383.0	518	34.2	4,176	1,305	2,560	51,700	787,920
K-33	640	1,213,520	1156.8	1,418	114.3	11,340	7,104	2,560	170,000	1,876,224
X-333	640	1,364,048	1093.5	1,418	114.3	11,340	7,104	2,560	172,800	1,422,720
C-333	480	1,228,520	994.3	1,070	85.9	8,505	5,328	1,920	100,400	1,329,548
C-337	480	1,143,040	926.1	1,070	85.9	8,505	5,328	1,920	125,600	1,693,440

* Combined cooling to K-27 and K-29. Capacity = 40,000 gpm; Volume = 658,161 $ft.^3$

Note: Volumes of process buildings do not include truck alleys. Dimensions furnished by D. S. Pesce.

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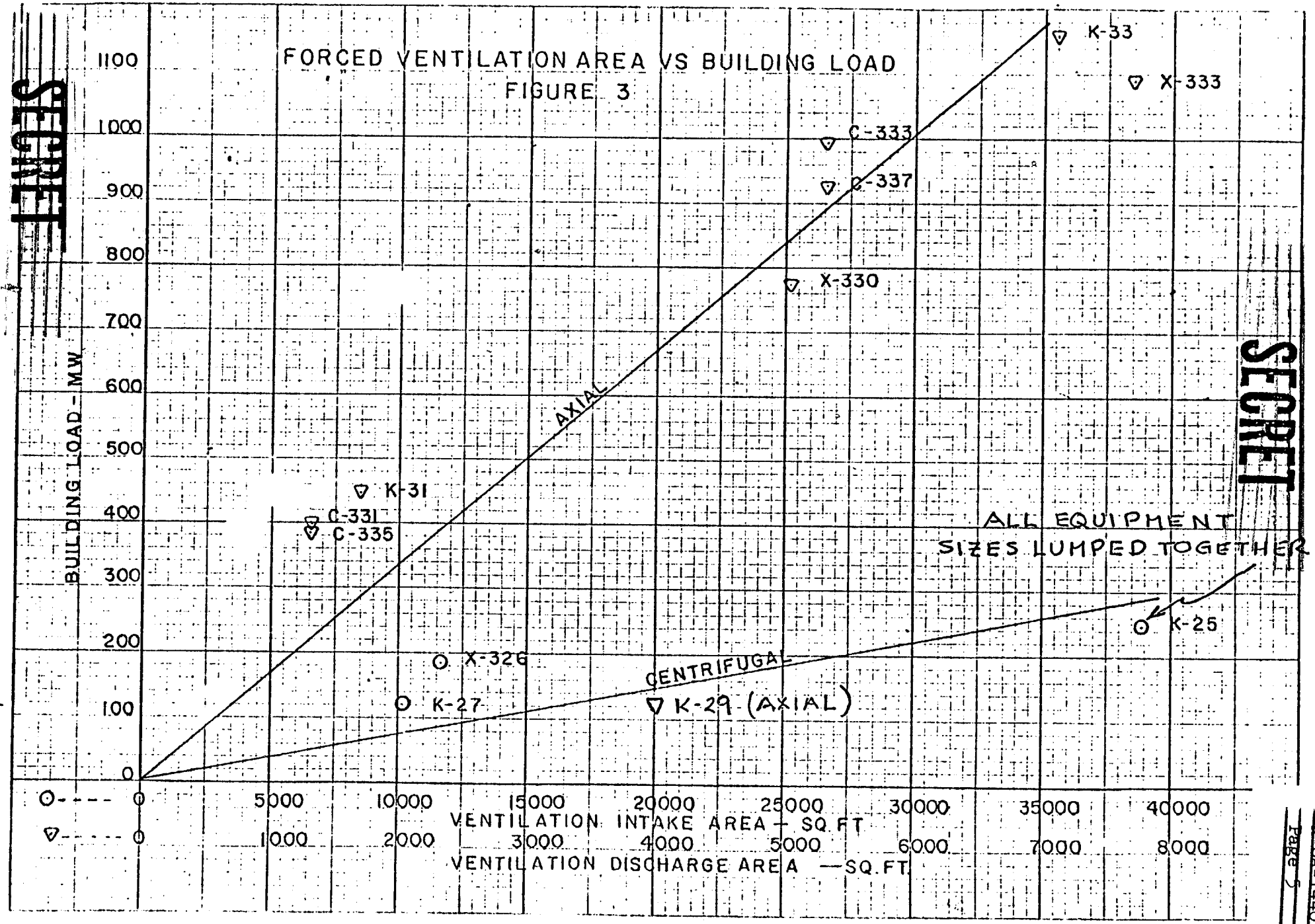

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